

## REMARKS

Claims 1 and 2 are pending in the application. Claims 1 and 2 are rejected. Claim 1 has been amended for clarity. New claims 3-9 have been added. No new matter is introduced by these amendments.

### Reply to the Rejection of Claims 1 and 2 under 35 U.S.C. § 102(b) or, Alternatively, 103(a)

The Examiner has rejected Claims 1 and 2 as being anticipated by U.S. Patent No. 5,064,563 to Yamaguchi *et al.* ("Yamaguchi"), or alternatively, obvious in view of Yamaguchi. Specifically, the Examiner states –

Reference to Yamaguchi *et al.* specifically teaches neutralized maleate copolymers as required by applicants' claims. The potential differences between the polymers taught by the reference and those claimed by applicants resides in characteristics required in the claims which include Gardner color number and the order of neutralization. The chemical makeup of the polymer to Yamaguchi *et al.* being from the same monomers and the same salts are presumed to have the same physical characteristics as those required by applicants' claims even though these specifics are not enumerated in the reference. The claims are, therefore, either anticipated or rendered prima facie obvious from the teaching of the reference absent evidence of structural difference, *In re Fitzgerald et al.*, 205 USPQ 594.

For the following reasons, Applicants respectfully traverse the Examiner's rejection of 1 and 2 as being anticipated by, or in the alternative, obvious in view of Yamaguchi.

Referring to Yamaguchi, therein is disclosed a process for producing a biodegradable maleic acid copolymer salt. The copolymer is formed from 75 to 100 weight % of maleic acid and 0 to 25 weight % of another water-soluble ethylenically unsaturated monomer (col. 2, lines 20-27). Polymerization is carried out in the presence of 0.3 ppm to 50 ppm, based on weight of the monomer component, of a polyvalent metal ion selected from vanadium, iron and copper (col. 2, lines 30-33; claim 1). Polymerization is catalyzed in 12 to 150 g of hydrogen peroxide, based on weight of the monomer component (col. 2, lines 25-30). Polymerization further occurs in the presence of an alkaline substance required to neutralize up to 45-mole % of the whole acid group in the monomer component (col. 2, lines 33-35).

According to Yamaguchi, if the existing amount of the alkaline substance exceeds 45 mole %, the obtained maleic acid copolymer salts show very inferior biodegradability (col. 4,

lines 33-39). Independent claim 1 has been amended so that at least 45 mole % of the carboxylic acid groups on the maleic acid are neutralized prior to polymerization. Yamaguchi teaches this amount as being undesirable, effectively teaching one skilled in the art away from using such an amount. Further, by pre-neutralizing at least 45% of the carboxylic acid groups, the molecular weight of the polymaleate of the present invention would differ from the product of Yamaguchi, which is limited to less than 45%, effectively rendering a different product. Therefore, it cannot be said that the salts of Yamaguchi would have the same physical characteristics as the products of the present invention.

It is believed that these amendments and remarks overcome the Examiner's rejection of claims 1 and 2 as being anticipated by Yamaguchi under 35 U.S.C. § 102(b), or, alternatively, obvious in view of Yamaguchi under 35 U.S.C. § 103(a). Withdrawal of the rejection is respectfully requested. New claims 3-9 simply provide further limitations to claim 1 and therefore should likewise be allowed.

**Reply to the Rejection of Claims 1-2 Under the Judicially Created Doctrine of Obviousness-Type Doubling Patenting**

The Examiner has rejected Claims 1 and 2 under the judicially created doctrine of obviousness-type doubling patenting as being unpatentable over claim 1 of U.S. Patent No. 6,020,297. Submitted herewith for the Examiner's consideration is a terminal disclaimer pursuant to Rule 321. It is believed that this terminal disclaimer overcomes the Examiner's rejection of Claims 1 and 2 under the judicially created doctrine of obviousness-type doubling patenting. Withdrawal of this rejection is therefore respectfully requested.

Based on the above amendments and remarks, allowance of the claims is believed to be in order, and such allowance is respectfully requested.

Respectfully submitted,



David P. LeCroy  
Attorney for Applicants  
Reg. No. 37,869

Dated: 2 February 2004  
NATIONAL STARCH AND CHEMICAL  
COMPANY  
Post Office Box 6500  
Bridgewater, New Jersey 08807-0500  
Phone 908.683.5433  
Fax 908.707.3706